

WHAT IS CLAIMED IS:

1 1. A data and telecommunications switch, comprising:
 2 one or more input ports for receiving data from one or more input devices;
 3 a router adapted to route said data to one or more output devices, said router
 4 including a router table, the router table implemented as a DRAM and SRAM lookup
 5 table; and
 6 a switch control unit for conducting a search of said SRAM and DRAM lookup
 7 table when said data are received.

1 2. A data and telecommunications switch in accordance with claim 1,
 2 wherein a lookup table search comprises searching an SRAM portion and, if
 3 necessary thereafter, searching a DRAM portion of said SRAM and DRAM lookup
 4 table.

1 3. A data and telecommunications switch in accordance with claim 2, said
 2 lookup table search comprising an interval bisection search, wherein a
 3 predetermined number of levels of said interval bisection search are stored in SRAM,
 4 and a remaining number of levels are stored in DRAM.

1 4. A data and telecommunications switch in accordance with claim 2, said
 2 lookup table search comprising a binary tree search, wherein a predetermined
 3 number of levels of said binary tree search are stored in SRAM, and a remaining
 4 number of levels are stored in DRAM.

1 5. A method, comprising:
 2 receiving a data packet at an input port;
 3 reading a header of said data packet for routing identification information;
 4 using said routing identification information for accessing an SRAM portion of
 5 a routing table for routing information and, if necessary, a DRAM portion of said
 6 routing table; and

7 routing said data packet using said routing information.

1 6. A method in accordance with claim 5, wherein said accessing
2 comprises performing an interval bisection search, wherein a predetermined number
3 of levels of said interval bisection search are stored in SRAM, and a remaining
4 number of levels are stored in DRAM.

1 7. A method in accordance with claim 5, wherein said accessing
2 comprises performing a binary tree search, wherein a predetermined number of
3 levels of said binary tree search are stored in SRAM, and a remaining number of
4 levels are stored in DRAM.

1 8. A method, comprising:
2 providing one or more input ports for receiving data from one or more input
3 devices;
4 providing a router adapted to route said data to one or more output devices,
5 said router including a router table, the router table implemented as a DRAM and
6 SRAM lookup table; and
7 providing a switch control unit for conducting a search of said SRAM and
8 DRAM lookup table when said data are received

1 9. A method in accordance with claim 8, wherein a lookup table search
2 comprises searching an SRAM portion and, if necessary thereafter, searching a
3 DRAM portion of said SRAM and DRAM lookup table.

1 10. A method in accordance with claim 9, said lookup table search
2 comprising an interval bisection search, wherein a predetermined number of levels of
3 said interval bisection search are stored in SRAM, and a remaining number of levels
4 are stored in DRAM.

1 11. A method in accordance with claim 10, said lookup table search
2 comprising a binary tree search, wherein a predetermined number of levels of said

3 binary tree search are stored in SRAM, and a remaining number of levels are stored
 4 in DRAM.

1 12. A router for a data and telecommunications system, comprising:
 2 a routing controller for reading routing identification information from incoming
 3 data packets; and
 4 a routing table for storing routing information, said routing table having a
 5 DRAM portion and an SRAM cache, wherein said routing controller uses said routing
 6 identification information to access said routing table for said routing information.

1 13. A router in accordance with claim 12, wherein a first portion of a search
 2 of said routing table is conducted in said SRAM cache and a second portion is
 3 conducted in said DRAM portion.

1 14. A router in accordance with claim 13, wherein said search comprises
 2 an interval bisection search.

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